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| 10/576,450 | 04/20/2006 | Nobuhiko Tsuda | Q94064 | 3460 |
| 23373 | 7590 | 03/02/2011 | EXAMINER | |
| SUGHRUE MION, PLLC | | | BUIE-HATCHER, NICOLE M | |
| 2100 PENNSYLVANIA AVENUE, N.W. | | | | |
| SUITE 800 | | | ART UNIT | PAPER NUMBER |
| WASHINGTON, DC 20037 | | | 1767 | |
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| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 03/02/2011 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/576,450 | TSUDA ET AL. | |
| | Examiner | Art Unit | |
| | NICOLE M. BUIE-HATCHER | 1767 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 December 2010.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,4 and 7-12 is/are pending in the application.
 4a) Of the above claim(s) 9-12 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,4,7 and 8 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claim Status

Claims 1, 4, 7, and 8 remain pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al. (US 5,670,593).

Regarding claims 1 and 4, Araki et al. discloses a tetrafluoroethylene polymer aqueous dispersion containing 0.01-80 mol% of a functional fluorine-containing olefin (C6/L8-54) for example the formulas as shown below as well as their derivatives (C25/L26-C26/L49):



Araki et al. disclose in claim 1 the tetrafluoroethylene polymer aqueous dispersion wherein the tetrafluoroethylene polymer has a tetrafluoroethylene unit content of 20-99.99 mol%.

Additionally, it is possible to use **no usual free emulsifying agent** or decrease an amount thereof (C21/L57-63).

However, Araki et al. does not disclose the amount of tetrafluoroethylene exceeds 60 mole percent. For Examples 33-35 which the polymerization conditions are shown in Table 7, a hydroxyl version of the reactive emulsifier is used wherein the tetrafluoropolymer contains 99.2 mole% of tetrafluoroethylene in Example 33, 99.1 mole% tetrafluoroethylene in Example 34,

and 98.5 mole% of tetrafluoroethylene in Example 35. Therefore, it would have been obvious to one of ordinary skill in the art would expect if the N-1-OH surfactant used in these examples was substituted with any of the N-1-COOH, N-2-COOH, or N-1-COONH₄ (C58/L62-C59/L10) which are the same emulsifiers as shown above would have a reasonable expectation of success in the polymerization process of higher amounts of tetrafluoroethylene.

Regarding claim 7, Araki et al. does not disclose the tetrafluoroethylene polymer aqueous dispersion which has a solid matter concentration of 5 to 70% by mass. Additionally, Hirashima et al. teaches the solid matter concentration of the water-based emulsion is from 10 to 70 wt% (C8/L55-62). It would have been obvious to one of ordinary skill in the art at the time of invention to obtain a solid matter concentration as taught by Hirashima et al. in a composition of Araki et al., and the motivation to do so would have been as Hirashima et al. suggests to improving storage stability and viscosity (C8/L55-62).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Araki et al. (US 5,670,593) in view of Hirashima et al. (US 5,856,392) as applied to claim 1 above, in further view of Araki et al. (WO 95-08598A, see English equivalent (US 5,925,705) for citation).

Regarding claim 8, Araki et al. (US '593) does not disclose the tetrafluoroethylene polymer aqueous dispersion wherein the particle comprising the tetrafluoroethylene polymer has an average primary particle diameter of 50 to 500 nm. Araki et al. (US '705) teaches the particle size is not more than 200 nm (C3/L14-22). Araki et al. (US '593) and Araki et al. (US '705) are analogous art concerned with the same field of endeavor, namely aqueous dispersions of fluoropolymers produced from emulsion polymerization. It would have been obvious to one of

ordinary skill in the art at the time of invention to use the particle size of Araki et al. (US '705) in the dispersion of Araki et al. (US '593), and the motivation to do so would have been to improve the stability of the dispersion (C3/L14-22).

Response to Arguments

Applicant's arguments filed 12/10/2010 have been fully considered but they are not persuasive. The following comment(s) apply:

A) Applicant's argument that compound of formula (V) is an impurity in a polymerization for producing a perfluoro-based polymer having a TFE unit content exceeding 60 mole percent, and therefore, it would not have been obvious to use the compound of formula (v) in the dispersion of Araki (page 3) is not persuasive. As shown above in claim 1, Araki et al. teaches the functional fluorine-containing olefin of the claimed formula (V) with a tetrafluoroethylene polymer having tetrafluoroethylene unit content of **20-99.99 mol%**. Therefore, Araki does not teach away from using the claimed fluorovinyl group-containing compound (V) in the polymerization process of tetrafluoroethylene. Since the functional fluorovinyl ethers are disclosed to be useful in the polymerization of tetrafluoroethylene, using any of the functional fluorovinyl ethers which correspond to the formula (V) of the instant claims would have a reasonable expectation of success in the polymerization process of higher amounts of tetrafluoroethylene.

B) Applicant's argument that Araki does not disclose the specific fluorovinyl group-containing emulsifier of formula (V) (page 3) is not persuasive. As shown above in claim 1,

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Araki discloses the following functional fluorine-containing olefins which correspond to the formula (V) as instantly claimed:



C) Applicant's argument that N-1-OH is not an emulsifier but rather is a monomer for providing a fluorine-containing polymer having a functional group (page 3) is not persuasive. Araki teaches the hydroxyl as well as the carboxylate derivatives of the monomer may be used (C6/L8-54). Therefore, substituting one monomer for the other is obvious. Since both monomers form functional polymers and no usual free emulsifying agent is needed as shown above in claim 1, using any of the functional fluorovinyl ethers which correspond to the formula (V) of the instant claims would have a reasonable expectation of success in the polymerization process of higher amounts of tetrafluoroethylene.

D) Applicant's argument that the polymerizations of Examples 33-35 are suspension polymerizations (pages 3 and 4) is not persuasive. Whether the polymerization process of Examples 33-35 is emulsion or suspension polymerization process does not change the fact that the claimed tetrafluoroethylene polymer aqueous dispersion is produced. Furthermore, all of the

claimed ingredients are present in the tetrafluoroethylene polymer aqueous dispersion. Then the instant claim is a product by process claim. The examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F. 2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process). See MPEP § 2113. Furthermore, instant claim 1 is not limited to a dispersion produced by emulsion polymerization. Any polymerization wherein tetrafluoroethylene in an aqueous medium in the presence of claimed compound (V) in the claimed amounts meets the claimed limitations. Alternatively, with all the claimed ingredients and amounts an emulsion is formed, absent objective evidence to the contrary.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE M. BUIE-HATCHER whose telephone number is (571)270-3879. The examiner can normally be reached on Monday-Thursday with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1767

/N. M. B./
Examiner, Art Unit 1767
2/15/2011

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